

## Return on Assets 2001

This report complies with the requirements of 77-1-223-225 MCA which stipulates that each year the Board of Land Commissioners will provide annual reports regarding the average return of revenue to trust beneficiaries from forested lands classified under 77-4-401 as class 2 trust lands<sup>1</sup>. The report must include for each beneficiary:

1. The total acreage of forest land held in trust;
2. A summary of the asset value for the forested lands held in trust;
3. A calculation of the average return of revenue on asset value for the forested tracts held in trust; and
4. A listing by each department land office of the total forested acreage administered for the trust beneficiary and a calculation of the average return of revenue on asset value for lands designated to the trust beneficiary.

### Classified Forest Lands

Table I presents the number of net-forested acres by land office and trust. This amount and distribution of trust lands has not changed since last years report. The gross number of acres is given in the appendix together with a description of the trust abbreviations. The difference between the gross and net acreage is the elimination of all lands that were not utilized for commercial forest production, such as cabin sites, non forested areas, hardwood areas, etc.

<b>Table 1.</b> <b>Total Net Forested Acres by Grant and Land Office</b>										
Land Office	A.C.B.	A.C.I.	C.S.	D. D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	509	-	9,511	502	2,371	1,120	540	7,299	-	21,852
NELO		-	19	-	-	-	-	-	-	19
NWLO	11,818	3,354	192,784	8,309	38,575	9,818	9,366	1,626	155	275,805
SWLO	7,944	2,069	79,002	400	26,366	2,556	3,506	4,488	322	126,654
Total	20,271	5,423	281,316	9,211	67,312	13,494	13,412	13,413	477	424,329
Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division										

Common School Trust lands contain the largest number of acres with 66 percent of the net forested lands leaving the remaining 34 percent divided among the other 8 trustees. The Northwest Land Office contains nearly 65 percent of the net-forested trust lands, the Southwest land office 30 percent, The Central Land Office 5 percent, and the Northeast

<sup>1</sup> Except when necessary for clarity, this years report will not include the methodology appendices contained in the first report published in 2000. The methodology has remained essentially the same. For methodological detail refer to the 2000 "Return on Asset" report.

Land Office less than 1 percent<sup>2</sup>. Classified forests on school trust lands are not found in the either the Eastern or Southern Land offices.

### Asset Values for Classified Forest Lands

The asset values are derived using procedures from Title 15, chapter 44, part 1. Area Land values are derived first, and then these values are multiplied by the net classified forestlands. In order to retain consistency with the previous report, unless they are specifically excluded, all monies are in constant 2000 dollars.

<b>Table 2</b> <b>Total Asset Value by Trust and Land Office Based on Net Forested Acres</b> <b>(2000 \$'s)</b>										
Land Office	A.C.B.	A.C.I.	C.S.	D. D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	\$147,692	\$0	\$3,222,859	\$313,516	\$1,194,909	\$565,948	\$256,189	\$2,291,636	\$0	\$7,992,749
NWLO	7,073,944	1,924,061	124,022,993	5,105,372	22,006,609	5,925,341	5,692,821	1,107,334	84,541	172,943,015
SWLO	4,745,959	849,586	44,607,216	208,920	15,024,288	1,432,902	1,982,818	2,913,933	158,324	71,923,947
Total	\$11,967,596	\$2,773,647	\$171,853,068	\$5,627,808	\$38,225,805	\$7,924,192	\$7,931,828	\$6,312,902	\$242,865	\$252,859,712
Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division										

Common Schools have 68 percent of the net classified forest asset value. The Northwest Land Office contains nearly 69 percent of the net classified forest asset value.

A comparison to last year's asset value indicates that the asset value of classified forest lands in the state dropped by over \$6.5 million or nearly 2.6 percent. The loss was not distributed equally across trust lands. The Northwest Land Office lost the largest amount of the area offices, \$7.4 million or 4.1 percent of its asset value, and the Common School trust lost nearly \$5 million or 2.8 percent of its asset value. In percentage terms, the Common School Trust did not have the largest loss in asset value; the School of Mines Trust lost 3.2%. In dollar terms, this amounted to \$265,064 of asset value.

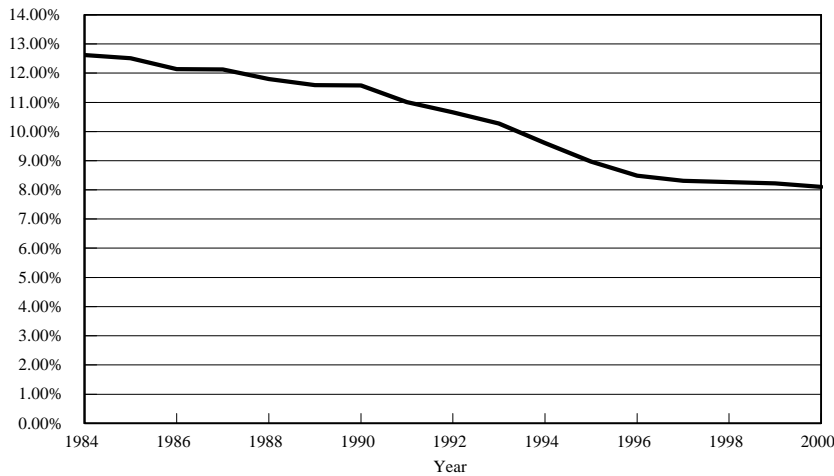
Asset value is determined by the formula

$$V = \frac{((M \times S) + AI) - C}{R}$$

V is the Asset value, M is the annual net wood production, S is the stumpage value, AI is the agriculture related income, C is the cost of forest product and agricultural production, and R is the Capitalization rate. Because the primary source of income from the classified forest lands is timber harvesting, the value of the harvest (M x S) and the

<sup>2</sup> Because of the small volume of land in the Northeast Land Office, this area will be dealt with in a separate section at the end and not included in the remaining analysis or tables.

**Figure 1**  
**Farm Credit Bank Interest Rates**



Source: Montana Department of Natural Resources and Conservation, Trust Land Management and the Spokane Farm Credit Bank District

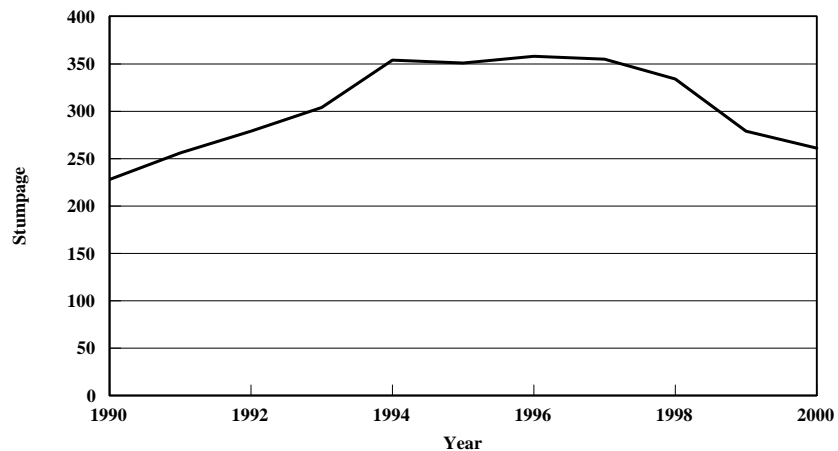
capitalization rate (R) have the most important influence on the asset value V. Asset value will increase as the capitalization rate falls.

The capitalization rate, composed of the yearly interest rate from the Farm Credit Bank in Spokane and the average effective tax rate on forestlands, is

dominated by the interest rate component. Figure 1 shows the average annual interest rate charged by Farm Credit Bank in Spokane for the period 1984 to 2000. The interest rate declines throughout this entire period with the rate of decline varying over time. This changing rate of decline will be important when analyzing the return on assets but is of limited interest at this point. What is important is that the rate is declining. This means that if nothing else changed the asset value of the classified forest lands would increase as interest rates dropped. While tax rates have been changing they amount to less than 1% of the total capitalization rate, so their effect has been negligible. The actual capitalization rate is a moving average of the last five years, however since the rate has been declining for more than five years the moving average will also be declining.

The decline in income was caused primarily by a continuing decrease in stumpage values. As with the capitalization rate the stumpage rate is based on a five year average of stumpage rates. The five year average stumpage

**Figure 2**  
**Five Year Moving Average of Stumpage plus Forest Improvement Fees**



Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division

rates (Including FI) for zone 1 are shown in figure 2. Reviewing the period from 1995 to 2000 the average stumpage rate starts out flat or declining slightly, however, the rate starts decreasing rapidly from 1998 to 2000. In the last two years, the average rate has decline rapidly. Since the stumpage rate is declining, the revenue from stumpage is declining and if other factors are relatively constant net revenue from Classified forestlands must be declining and, from our formula, the asset value of forestlands will also decline.

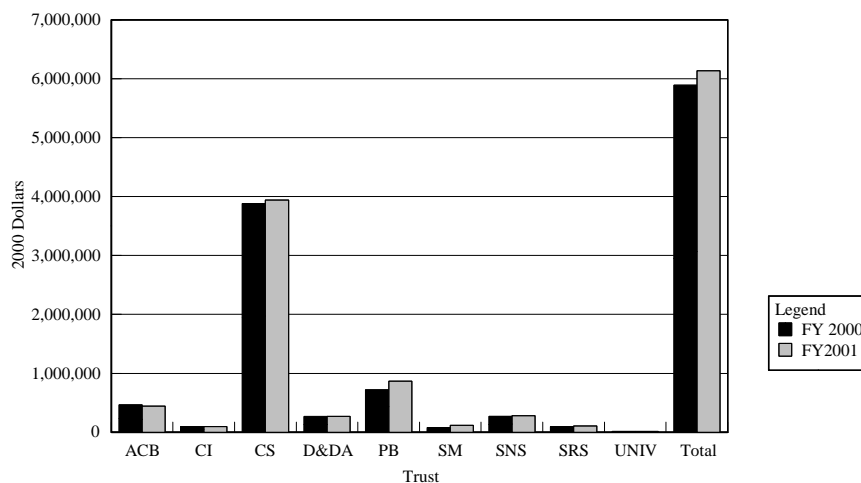
Thus, there are two competing variables in the asset formula, the capitalization rate and the stumpage rate, which provide the primary influence on the asset value of classified forestlands. Why is the asset value declining? Comparing figure 1 and figure 2, particularly the last two years shows that capitalization rates, while declining, are nearly flat, whereas stumpage rates are declining more steeply. This means that the loss of income resulting from the declining stumpage rates is going to have more influence than small increase in the capitalization rate on the asset value of the classified forest lands. Consequently, this years (2001) asset value for classified forestlands is lower than last years (2000). Without a dramatic commodity price increases, this trend is likely to continue for the next few years.

### Revenue from Classified Forest Lands

<b>Table 3</b> <b>Average Annual Gross Revenue from Commodity Sales FY 2001</b> <b>(2000 \$'s)</b>										
Land Office	A.C.B.	A.C.I.	C.S.	D.& D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	\$ 510	\$ 0	\$ 145,770	\$ 239	\$ 1,539	\$ 1,424	\$ 20,600	\$ 38,171	\$ 0	\$ 208,253
NWLO	162,533	30,311	2,899,630	262,660	421,954	70,871	28,229	11,880	5,186	3,893,254
SWLO	279,204	67,003	896,596	8,195	441,759	44,625	231,391	57,994	8,070	2,034,837
Total	\$442,248	\$97,314	\$3,941,996	\$271,094	\$865,252	\$116,920	\$280,220	\$108,045	\$13,256	\$6,136,344

Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division

**Figure 3**  
**Average Annual Gross Revenue**  
**FY 2000 Vs FY 2001**



The ten-year average gross revenue from commodity sales is shown in table 3. The average is based on ten years of revenue through 2001. Timber remains the largest single revenue generation commodity from classified forestlands. The

revenue shares in FY 2001 are 95% from timber harvesting, 2% from oil and gas sales and leases, 2% from agriculture and grazing leases, and 1% from conservation licenses, and general recreation use. The gross revenue is up slightly this year because of an increase in timber receipts. Timber receipts are based on the actual volume harvested rather than the volume sold. Timber contracts typically require trees to be harvested within a three to five year period. This allows timber companies to utilize a multi-year planning horizon and helps reduce industry operating costs by allowing firms to “group” purchases. This should, in turn, increase the stumpage rates received by the Forest Management Bureau. This also means that the successful bidders will not necessarily harvest the timber immediately after a sale, but may delay the harvest until it is most favorable to the buyer. Figure 3 compares this year’s gross revenue compared to last years. Nearly all of the trusts increased their revenue from the sale of assets from trust lands. Montana State University (ACB) showed a slight decline, all others had an increase in revenue or broke even.

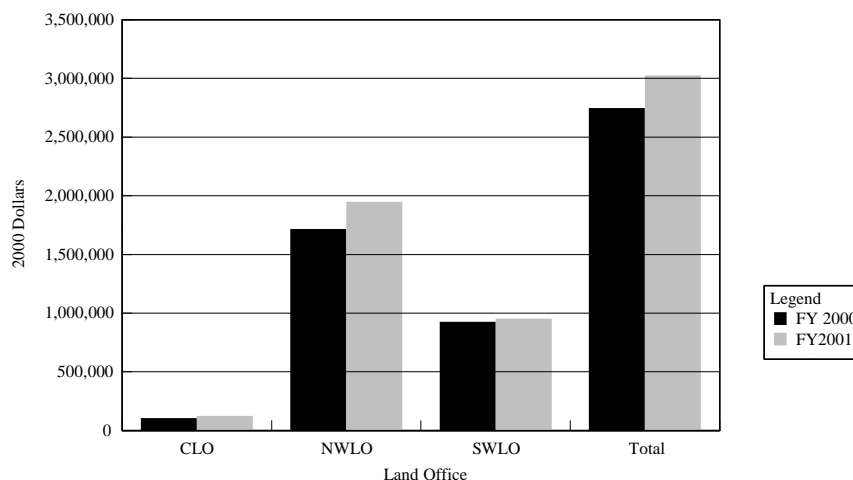
Adjusting the gross revenue to reflect the different agency’s expense of preparing selling the different commodities yields the net revenue shown in Table 4. Here again, the revenue levels have increased for nearly all of the Trusts compared to last year. At the net revenue level all trusts gained revenue or was virtually unchanged from last year. Total

<b>Table 4</b> <b>Average Annual Net Revenue from Commodity Sales</b> <b>(2000 \$'s)</b>										
Land Office	A.C.B.	A.C.I.	C.S.	D. & D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	\$ 370	\$ 0	\$ 81,443	\$ 123	\$ 956	\$ 1,136	\$ 19,630	\$20,097	\$ 0	\$ 123,755
NWLO	81,750	15,632	1,451,508	130,030	210,993	35,527	14,320	5,913	2,586	1,948,260
SWLO	130,749	30,793	414,561	5,343	215,248	21,391	99,421	30,555	6,835	954,896
Total	\$212,869	\$46,425	\$1,947,512	\$135,496	\$427,197	\$58,054	\$133,371	\$56,566	\$9,421	\$3,026,911

Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division

net revenue from commodity sales is up also. Average costs for the different agencies have not changed significantly in 2001 so the average benefit cost ratio changed little. Figure 4 compares the net revenue on an area basis. The Northwest Land Office had the

**Figure 4**  
**Average Annual Net Revenue from Commodity Sales**  
**FY 2000 Vs FY 2001**



Source: Montana Department of Natural Resources and Conservation, Trust Lands Division

largest increase in net revenue because of the large timber harvest in that area. The SWLO and the CLO also had modest increases in their income levels measured in dollar terms. In percentage terms the largest increase was in the CLO at nearly 17%, followed by the

NWLO with 13% and third was the SWLO with 3%. The lowest in dollar terms was the CLO with an increase of \$17,831 over 2000.

### Return on Assets to Classified Forestlands

The total current asset value for forested lands in 2001 is shown in table 5. The total value of the average return to assets is down because of the lower level of appreciation in 2001 compared to 2000. The reason for decline in appreciation is because of the lower prices being received for timber in 2001 compared to the price received in the early 1990's.

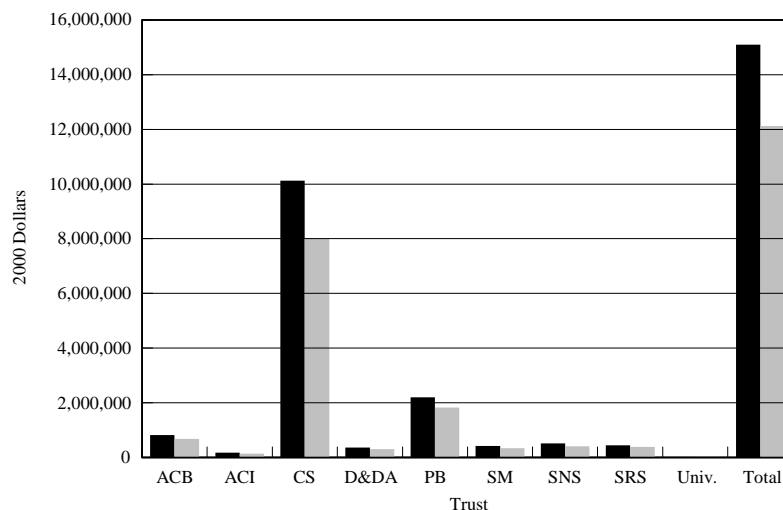
**Table 5**  
**Annual Return to Total Assets by Trust and Land Office for 2001**  
**(2000 \$'s)**

Land Office	A.C.B.	A.C.I.	C.S.	D.& D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	\$ 9,180	\$ -	\$ 277,167	\$ 20,143	\$ 77,305	\$ 37,579	\$ 36,179	\$ 158,053	\$ -	\$ 615,608
NWLO	\$ 276,654	\$ 68,309	\$ 4,902,358	\$ 271,210	\$ 812,894	\$ 198,966	\$ 171,497	\$ 36,951	\$ 4,883	\$ 6,743,722
SWLO	\$ 390,552	\$ 76,227	\$ 2,838,510	\$ 19,617	\$ 931,245	\$ 98,293	\$ 205,840	\$ 195,276	\$ 15,313	\$ 4,770,874
Total	\$ 676,387	\$ 144,536	\$ 8,018,035	\$ 310,970	\$ 1,821,445	\$ 334,838	\$ 413,516	\$ 390,280	\$ 20,196	\$ 12,130,203

Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division

Since appreciation is partially based on commodity prices being capitalized into the land value, the lower current prices relative to the prices received in the early 1990's will reduce the amount of appreciation. The decline in prices was partially offset by the decrease in the capitalization rate (the interest rate from the Spokane District Farm Credit Bank plus the tax rate). However, if timber prices remain low relative to the prices in the early 1990's the appreciation rate is likely to continue to decline and might become negative for a short period of time.

**Figure 5**  
**Annual Return to Total Assets by Trust**  
**FY 2000 vs FY 2001**



In 2001, all of the Land Offices and nearly all of the Trusts had a lower return on assets compared to 2000 due to the lower levels of appreciation. The total loss of

return to assets from year 2000 to 2001 was \$2,961,523 or a decrease of 19.6%. Because the return to total assets is composed of the sum of appreciation and the net return from commodity sales, which is higher in the year 2001 than in the year 2000, the decrease is not as large as it would have been if only appreciation were considered. Figure 5 compares the return to total assets for each trust for the years 2000 and 2001. The University of Montana was the only trust to have a greater return in year 2001 than in year 2000.

The rate of return on assets for FY 2000 is shown in table 6 by land office and by trust. The average return on assets is down compared to the level in the 2000 Return on Asset report. The reason for the decline in the rates of return on assets is, as discussed earlier, the lower level of appreciation in the year 2001 compared to 2000

Land Office	A.C.B.	A.C.I.	C.S.	D. D. A.	P.B.	S.M.	S.N.S.	S.R.S.	Univ.	Total
CLO	6.2%	0.0%	8.6%	6.4%	6.5%	6.6%	14.1%	6.9%	0.0%	7.7%
NWLO	3.9%	3.6%	4.0%	5.3%	3.7%	3.4%	3.0%	3.3%	5.8%	3.9%
SWLO	8.2%	9.0%	6.4%	9.4%	6.2%	6.9%	10.4%	6.7%	9.6%	6.6%
Total	5.7%	5.2%	4.7%	5.5%	4.8%	4.2%	5.2%	6.2%	8.3%	4.8%

Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division

The overall rate of return is down 1% from last years report. The decrease in the rate would have been greater had the asset value of the State's classified forestland not decreased. Like appreciation, the current asset value of the State's classified forestland is dependent on current prices received for the resources produced from the forestlands. Lower average prices for resources meant a decrease in the asset value of the forest,

consequently, the rate of return did not decrease as rapidly as it would have if the asset value had not declined by nearly \$7 million.

**Figure 6**  
**Rate of Return from Classified Forest Lands**  
**FY2000 vs FY2001**

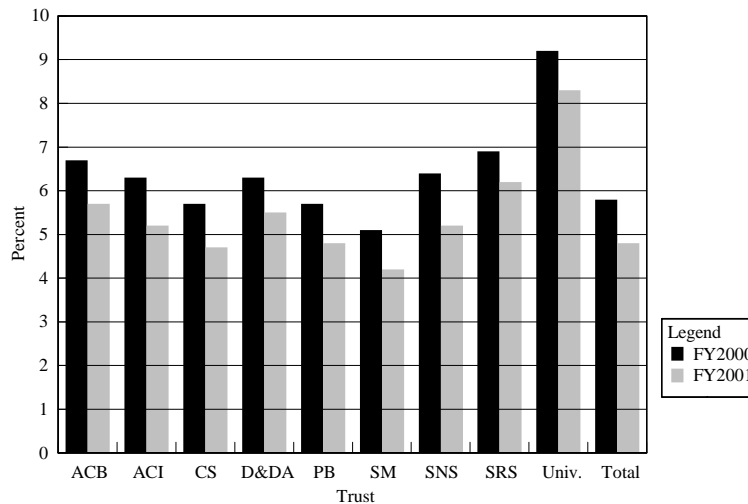


Figure 6 compares the rates of return on State classified forestland for 2000 and 2001.

Changes in the rate of return on the various trusts were different for different trusts, but all decreased over last year despite the fact that the income from commodity sales on classified forestlands increased. In terms of current income the trusts receive more in the current fiscal year than in the last fiscal year from state classified forestlands.

## Northeastern Land Office

Little has changed in the Northeastern Office 19 acres of classified forestlands. The asset value is now \$4,185 up 2.5% over the 2000-year level. The gross return on assets is \$8,389 compared to \$8381 in the previous year. The rate of return on assets is 200% and 100% for the gross and net returns, respectively. As was the case last year the timber sale in the 1990s is largely responsible for the majority of the return on assets for the Northeastern Land Office return on classified forestlands.

## Summary

The estimated asset value of the States classified forestlands decreased overall and for nearly all of the trusts within each land office area. The reason for the decrease was because of the lower prices currently being received for timber compared to the prices being received ten years ago. The decrease occurred despite the declining interest rate which has the effect of increasing the asset value of the forestland. For the same reason both the return on forestland assets and the rate of return on forestland assets declined from the year 2000. The lower prices resulted in reduced appreciation on the forestland and, despite the fact that the return from commodity sales increased, caused the overall asset values to decrease. Without a significant change in current market prices this trend is likely to continue into the future.

<b>Table 6</b>		
<b>Proportion of Net Revenue earned and Net Acreage by Trust</b>		
	Net Acres	Net revenue
Trust	% of Total	% of Total
A.C.B.	4.78%	7.03%
A.C.I.	1.28%	1.53%
C.S.	66.30%	64.34%
D.& D. A.	2.17%	4.48%
P.B.	15.86%	14.11%
S.M.	3.18%	1.92%
S.N.S.	3.16%	4.41%
S.R.S.	3.16%	1.87%
Univ.	0.11%	0.31%
Total	100.00%	100.00%
Source: Montana Department of Natural Resources and Conservation, Trust Lands Management Division		

Table 6 compares the percentage of the total trust acreage held by each trust to the percentage of the total return from net revenue (earnings from commodity sales) by trust. Returns by trust are generally in line with the acreage held. Some of the smaller trusts have proportionally larger returns such as the Deaf and Blind School Trust which has a return over twice its proportion of the total trust land. These variations are transitory and will even out over time. The reason they occur is that the distribution of land held is neither random by trust nor is it uniformly distributed by trust, but is located in a variety of patterns. Consequently, timber sales, which constitute the bulk of the net revenue, will not generate revenue for each trust uniformly by year or over a few years. In the long run, the share going to each trust should be proportional, if the



value of the assets on the land held by each trust is proportional to the acreage.

It is important when looking at this information to recognize that the asset value derived from this methodology does not represent a market value of the States Classified Forestlands, it is a capitalization of a limited number of resource uses into a land valuation. However, in a market situation, other values could make the market value of the land either higher or lower than the estimates derived in this analysis. Other considerations not included are access, scenic values, and intense agricultural use to name a few. In addition, other areas may contain non market values which are difficult to quantify and capitalize into the land value. Thus, this analysis does not necessarily represent the market value of the land. It does, however, represent a reasonable estimate of the value and return based on the current market uses.

## Appendix

### Trust land abbreviations

ACB	Montana State University – Morrill Grant
ACI	Montana State University – Second Grant
CS	Common Schools
D&DA	Deaf – Blind School
PB	Public Buildings
SM	Montana Tech of the University of Montana
SNS	State Normal School
SRS	State Reform School
Univ.	University of Montana

<b>Table 1A</b>										
<b>Number of Gross Acres of Classified Forestlands by Land Office and Trust</b>										
Land Office	ACB	ACI	CS	D&DA	PB	SM	SNS	SRS	Univ	Total
CLO	793	0	13,927	641	2,482	1,244	639	11,621	0	31,347
NELO	0	0	653	0	0	0	0	0	0	653
NWLO	12,791	3,495	207,815	8,852	40,994	10,961	10,816	1,643	157	297,524
SWLO	9,423	2,115	93,662	1,191	28,430	3,012	3,887	5,092	1,282	148,093
Total	23,007	5,609	316,058	10,684	71,905	15,217	15,343	18,356	1,438	477,617
Source: Department of Natural Resources and Conservation, Trust Lands Division										

The gross acreage shown in table 1A includes areas such as non-forested tracts, hardwoods, cabin sites, etc which are not included in Table 1.